

## Tool Grinders, Filers, and Sharpeners

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### What They Do

Tool Grinders, Filers, and Sharpeners perform precision smoothing, sharpening, polishing, or grinding of metal objects such as dies, parts, and machine tools. It is the job of these workers to help keep production machinery in precise working order. They work in a variety of industries; however, most work in metal manufacturing where metal sheets, strips, bars, rods, drill bits, or wires are made. Some work in private repair shops servicing machinery pieces, while others are self-employed and recondition household scissors or knives.

Other titles for this occupation include Die Polisher, Precision Honer, and Tool Maintenance Worker.

### Tasks

- ▶ Study blueprints or layouts of metal workpieces to determine grinding procedures, and to plan machine setups and operational sequences.
- ▶ Compute numbers, widths, and angles of cutting tools, micrometers, scales, and gauges, and adjust tools to produce specified cuts.
- ▶ Select and mount grinding wheels on machines, according to specifications, using hand tools and applying knowledge of abrasives and grinding procedures.
- ▶ Attach workpieces to grinding machines, then form specified sections and repair cracks, using welding or brazing equipment.
- ▶ Set up and operate grinding or polishing machines to grind metal workpieces such as dies, parts, and tools.
- ▶ Monitor machine operations to determine whether adjustments are necessary; stop machines when problems occur.
- ▶ File or finish surfaces of workpieces, using prescribed hand tools.
- ▶ Straighten workpieces and remove dents, using straightening presses and hammers.
- ▶ Inspect, feel, and measure workpieces to ensure that surfaces and dimensions meet specifications.
- ▶ Fit parts together in preassembly to ensure that dimensions are accurate.

Detailed descriptions of this occupations may be found in the Occupational Information Network (O\*NET) at [online.onetcenter.org](http://online.onetcenter.org).

## Tool Grinders, Filers, and Sharpeners

### Important Skills, Knowledge, and Abilities

- ▶ Design — Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
- ▶ Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- ▶ Operation and Control — Controlling operations of equipment or systems.
- ▶ Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- ▶ Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- ▶ Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
- ▶ Mathematics — Using mathematics to solve problems.
- ▶ Equipment Selection — Determining the kind of tools and equipment needed to do a job.
- ▶ Troubleshooting — Determining causes of operating errors and deciding what to do about it.
- ▶ Repairing — Repairing machines or systems using the needed tools.
- ▶ Technology Design — Generating or adapting equipment and technology to serve user needs.
- ▶ Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- ▶ Written Comprehension — The ability to read and understand information and ideas presented in writing.
- ▶ Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- ▶ Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- ▶ Near Vision — The ability to see details at close range (within a few feet of the observer).

### Work Environment

Tool Grinders, Filers, and Sharpeners generally work indoors in temperature-controlled machine shops and plants. They are on their feet most of the day using their hands to control machinery. They must observe safety rules and be alert to the hazards of machinery constantly in motion. They often wear safety glasses, earplugs, and other protective equipment to avoid burns or cuts. They wear face masks equipped with breathing apparatus when toxic fumes, dust, or minute metal parts are present.

Some manufacturing plants operate around the clock, and workers may be required to work evening, night, or weekend shifts, as well as overtime when needed. Generally, Tool Grinders, Filers, and Sharpeners work a 40-hour week. Union membership may be available in some plants, such as the Electronic, Electrical, Salaried Machine, and Furniture Workers; the International Brotherhood of Electrical Workers; and the United Steelworkers of America.

## Tool Grinders, Filers, and Sharpeners

### California's Job Outlook and Wages

The California Outlook and Wage table below represents the occupation across all industries.

Standard Occupational Classification	Estimated Number of Workers 2004	Estimated Number of Workers 2014	Average Annual Openings	2006 Wage Range (per hour)
<b>Tool Grinders, Filers, and Sharpeners</b>				
51-4194	1,800	1,900	70	\$10.36 to \$17.48

*Wages do not include self-employment.*

*Average annual openings include new jobs plus net replacements.*

*Source: [www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov), Employment Projections by Occupation and OES Employment & Wages by Occupation, Labor Market Information Division, Employment Development Department.*

### Trends

The majority of job opportunities for Tool Grinders, Filers, and Sharpeners will occur from the need to replace people who retire or permanently leave the field for other reasons. This is due to the increased use of numerically controlled machines that require Computer-Controlled Machine Tool Operators to work them. Tool Grinders who update their skills and learn the new machine technology can move into this higher paying job.

In general, employment of workers in this occupation will be affected by the rate of technological implementation, the demand for the goods they produce, the effects of trade, and the reorganization of production processes.

### Training/Requirements/Apprenticeships

Tool Grinders, Filers, and Sharpeners usually require between one and twelve months of combined on-the-job experience and informal training to be considered fully trained. Some take courses in community college or adult education course work leading toward certificates or associate degrees in programs such as agricultural mechanization, machine shop technology, and tool and die technology.

Most employers require newly-hired workers to have a high school or general equivalency diploma (GED). Apprenticeships are sometimes available, according to the California Tool and Die Mold, Machinist, and Metal Working Trades Apprenticeship Committee. Go to the Division of Apprenticeship Standards at [www.dir.ca.gov/das](http://www.dir.ca.gov/das) to find out about current apprenticeships.

#### Recommended High School Course Work

High school students interested in this kind of work should take algebra, geometry, and trigonometry, as well as metal shop, blueprint reading, and computer courses.

### Where Do I Find the Job?

Candidates for training or apprenticeship programs should apply directly to employers who employ Tool Grinders, Filers, and Sharpeners. Unions representing these workers also have information concerning apprenticeships and related matters.

## Tool Grinders, Filers, and Sharpeners

Use the *Search for Employers by Industry* feature on the *Career Center* page at [www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov) to locate employers in your area. Search using keywords from the following industry names to get a list of private firms and their addresses:

- ▶ Iron and Steel Mills
- ▶ Iron and Steel Pipe
- ▶ Copper Wire
- ▶ Commercial and Industrial Machinery
- ▶ Home and Garden Equipment Repair
- ▶ Machine Tool
- ▶ Cutting Tool

Search these **yellow page** headings for listings of private firms:

- ▶ Die Makers
- ▶ Metal Fabricators
- ▶ Metal Cutting Tools
- ▶ Tools-Electric, Repairing and Parts
- ▶ Metal Stamping
- ▶ Tools-Cutting
- ▶ Sheet Metal Work

### Where Can the Job Lead?

Advancement for Tool Grinders, Filers, and Sharpeners usually takes the form of higher pay for working on more complex equipment. There are opportunities to move to higher-level positions, such as operating computer numerically controlled (CNC) tool grinding machines. Some advance to supervisory positions, while others open their own business. Others take further training and advance to Tool and Die Makers or Machinists.

### Other Sources of Information

International Association of Machinists and Aerospace Workers  
[www.iamaw.org](http://www.iamaw.org)

National Institute for Metalworking Skills  
[www.nims-skills.org](http://www.nims-skills.org)

Precision Metalforming Association Educational Foundation  
[www.pmaef.org](http://www.pmaef.org)